

REMARKS

As a preliminary matter, the Examiner is correct in his remarks that claim 56 was inadvertently and erroneously numbered "55" as a typographical error in Amendment B, filed April 15, 2003. The Examiner correctly treated this claim as claim 56, and this claim is correctly numbered in the present Amendment.

Claims 50 and 57 stand rejected under 35 U.S.C. 102(e) as being anticipated by Akimoto et al. (US 6,329,973). Applicants respectfully traverse this rejection because the cited reference does not disclose (or suggest) a liquid crystal display device having the one-frame-period hold control and impulse control functions recited in claim 50 of the present invention, as amended.

Applicants appreciate the Examiner's acknowledgement on page 3 of Paper No. 12 that the device disclosed by Akimoto is different than the disclosure of the present invention. Accordingly, in the interests of expediting prosecution, Applicants have amended independent claim 50 to better clarify how the claims of the present invention are different than the device taught by Akimoto. Applicants' previous comments are incorporated by reference herein, and reconsideration of the outstanding rejection is respectfully requested in light of these amendments.

Specifically, claim 50 has been amended to more clearly recite, among other things, that the impulse control function outputs a display image in the same one frame period as the hold control function, but does not output this image during a remaining period within the one frame period. This combination of impulse and hold control functions is not

disclosed by Akimoto. More particularly, Akimoto fails to teach or suggest anything like the recited impulse control function of the present invention.

Moreover, claim 50 has been further amended to recite that the display image which is output is in units of pixel electrodes connected to scanning lines, and that the display image (which is a still image when hold control is carried out, and a moving image when impulse control is carried out) is shown with all pixel electrodes. Akimoto neither teaches nor suggests any of these features of the present invention as well.

First, as discussed above, Akimoto fails to teach or suggest the hold control and impulse control functions of the present invention as they operate within the recited one frame period. Although the Examiner is correct that Fig. 3 of Akimoto discloses how a still picture and a moving picture can be displayed in one *frame*, nothing in Fig. 3, or its accompanying description, discloses or suggests anything about how the moving picture and still picture function within one frame period. A “period” will be clearly known to one skilled in the art to refer to the timing of the device, and not the space the image is displayed two-dimensionally. In other words, although Akimoto does show that two images may be displayed along different rows of the same “frame,” nothing in Akimoto even suggests that a hold control over the still image and an impulse control over the moving image are performed within one frame period, and more particularly as according to the features of the one frame period now more clearly recited in claim 50. For at least these reasons, the Section 102 rejection of claims 50 and 57 is respectfully traversed.

Additionally, Akimoto neither teaches nor suggests anything about the outward display image being in units of pixel electrodes connected to the scanning lines. In fact, Akimoto does not even suggest that the moving image can be displayed in units according to the scanning lines. For at least these additional reasons, the Section 102 rejection of claims 50 and 57 is further traversed.

Furthermore, Akimoto fails to teach or suggest that either of its moving picture or still picture is shown with all pixel electrodes. In fact, Fig. 3 of Akimoto teaches the opposite. Neither of the two images displayed in Fig. 3 is shown with all pixel electrodes. For these reasons as well, this Section 102 rejection is once again traversed.

Lastly, Applicants wish to correct one assertion made by the Examiner in his citation to Akimoto. The Examiner quotes Akimoto at column 2, lines 34-37, as disclosing that image data input means “can input at least one moving image data and at least one still image data to an image display part at different rates.” The Examiner left a critical word out of this quote. Akimoto does not teach to input a moving image data and a still image data “at different rates,” but actually “at different frame rates.” This omission is not immaterial to the present discussion, because the frame rates taught by Akimoto directly refer to the timing of the device, and not to which rows of the “frame” the moving image data and the still image data are displayed. The different frame rates taught by Akimoto with respect to the two different types of image data, therefore, further illustrate the differences between Akimoto and the present invention.

As featured in the present invention, one frame period is recited to be the same, and therefore have the same length, for both the hold control and the impulse control functions. Akimoto, on the other hand, teaches in the portions cited by the Examiner that a frame period (which is dependent on the frame rate) differs according to whether the image is a still image or a moving image. Accordingly, for at least these further reasons as well, the rejection is traversed.

Even further still, the rejection is once again traversed because Akimoto clearly teaches in Figs. 2 and 3 to execute hold control and image control at the same time. The present invention, on the other hand, now more clearly recites that hold control and impulse control are both carried out when the display image is shown with all pixel electrodes. In other words, hold control and impulse control are not carried out at the same time according to the present invention. The Section 102 rejection is again respectfully traversed for at least these clear differences between the present invention and Akimoto.

Claims 51-52 and 58 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Akimoto in view of Matsuzaki et al. (US 5,644,332). Claim 53 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Akimoto in view of Numao (US 5,103,328). Claims 55-56 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Akimoto in view of Terasaki (US 5,844,540). Claim 60 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Akimoto in view of Kamikura et al. (US 6,266,370). Applicants respectfully traverse all of these rejections because all of these rejected claims depend either directly or indirectly from independent claim 50 of the present invention, and

therefore recite all of the features of the base claim, plus additional features. Applicants submit therefore, that all of these claims should be in condition for allowance for at least the reasons discussed above in traversing the rejection of claim 50 based on Akimoto.

With respect to claims 58 and 60 in particular, however, Applicants respectfully traverse the obviousness rejections because none of the cited references, whether taken alone or in combination, disclose or suggest to switch the hold control to impulse control (or vice versa) according to the display image. In fact, Akimoto (and all of the other cited references) does not teach or suggest anything about switching one of the “hold control and impulse control to the other depending on the image to be displayed.” For at least these additional reasons, the rejection of claims 58 and 60 in particular are again respectfully traversed.

Applicants further traverse all of the Section 103 rejections of the present invention because the present invention achieves specific advantages which cannot be realized by any of the cited prior art teachings, whether taken alone or in combination. More specifically, by separating the hold control and impulse control functions to be executed at different times, the present invention is able to realize a significantly less complex, and therefore more advantageous, control circuit than that required by Akimoto (Fig. 1, circuits 3, 5-6, and 8-10). Akimoto requires these more complex circuits for transmitting display pixel data to a signal line, whereas the present invention avoids this problem by the advantageous features recited in the present invention. The present invention is therefore able to maintain better image quality in a moving image than can the prior art, even when the

timings to supply the display pixel data to the signal line are defined to be the same for the still image and the moving image. Accordingly, a rejection of the present invention based on obviousness is inappropriate in light of these clear advantages over the prior art.

For all of the foregoing reasons, Applicants submit that this Application, including claims 50-58 and 60, is in condition for allowance, which is respectfully requested. The Examiner is invited to contact the undersigned Attorney if an interview would expedite prosecution.

Respectfully submitted,

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